

# NEW OR OTHERWISE INTERESTING COREOPSISIDINAE (COMPOSITAE) FROM NORTHWESTERN SOUTH AMERICA

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Recently I was sent for examination a small lot of herbarium specimens from the Smithsonian Institution, Washington, D.C. The lot was found to contain one new species and one new variety of *Bidens* L. and one new species and one new variety of *Coreopsis* L., also specimens representing a range extension of one previously described species of *Coreopsis*, and one specimen representing an isotype (or type?) of *C. holodasya* Blake. For the privilege of examining these specimens, I must express here my indebtedness to Dr. Lyman B. Smith, Curator of the Division of Phanerogams at the Smithsonian Institute. To assist me in surveying all the known taxa in the genus *Coreopsis* for South America, I have been particularly fortunate in being permitted to borrow all the mounted photographs (79 herbarium sheets in all) belonging to the Chicago Natural History Museum and representing South American taxa in *Coreopsis*. For this privilege, I take pleasure in expressing my gratitude to Mr. E. Leland Webber, Director of the Chicago Natural History Museum, and to Mr. J. R. Millar of the Department of Botany in that institution.

*BIDENS HOLWAYI* Blake & Sherff, var. **colombiana** var. nov.—Frutex, scandens, magnus, demum probabiliter saltem 5-10 m. altus; caule ramisque tetragonis sulculatisque, glabratis. Folia petiolata petiolis gracilibus 1.5-4.5 cm. longis basi connatis et hispido-ciliatis, petiolo adjecto 6-15 cm. longis pinnatim 3- vel 5-partita, foliolis membranaceis lanceolatis rarius ovato-lanceolatis apice attenuato-acuminatis, lateralibus subsessilibus vel tenuiter petiolulatis petiolulis usque ad 7 mm. longis, supra dense viridibus et sparsim adpresso-hispidulis, infra subgriseis densius longiusque hispidis, marginibus acriter serratis dentibus acerrime mucronulatis. Capitula subcorymbose ad ramorum fines (pedunculos tenues glabros sulculatos usque ad 2 dm. longos) adgregata, radiata, pansa ad anthesin,  $\pm 4$  cm. lata et 2-2.3 cm. alta. Involucri patellati viridisque basaliter glabrati vel subdense reflexo-hispidi bracteae exteriores patentis vel demum reflexae 10-14, elongatae, 1-2.2 cm. longae, oblonge lineares basim versus sensim angustatae apice acutae, longitudinaliter 1- vel 3-7-nerviae marginibus ciliatae faciebus subglabratae; interiores fere dimidio breviores, oblongo-lanceolatae, extus glabrae vel apice pubescentes, multistriatae. Flores ligulati  $\pm 3$  (sine

dubio saepius circ. 5), flavi, ligula lineares, circ. 10- vel 12-nervi,  $\pm 1.5$  cm. longi, apice acriter angustaque circ. 3-denticulati. Paleae angustae, lineares, tenerrimae, striatae, sub 1 cm. longae. Achaenia obcompressa, anguste linearia, corpore 16-22 mm. longa et 1-1.3 mm. lata, atra, faciebus glabra et angustissime sulculata marginibus acriter setuloso-ciliata, apice recte setosa et biaristata aristis gracilibus divergentibus circ. 5-6 mm. longis, fulvis, retrorsum hamosis.

Specimens examined: *José Cuatrecasas & R. Romero Castaneda* 25156, "climber, leaves dark green, involucre green," Andean forest and bushes, 2700-2800 m. alt., Quebrada de Floridablanca, Sierra de Perijá, Magdalena, Colombia, Nov. 9, 1959 (2 topotype sheets, US, where label on one sheet reads "corolla lilac," surely an error; rays, which doubtless are meant, are lacking, but cf. description for no. 25223 *sequ.*); *Cuatrecasas & Castaneda* 25223, climbing shrub; leaves green above, grayish beneath; ligules yellow, florets yellow; Andean forest and bushes, 2700-2800 m. alt., same locality, Nov. 11, 1959 (1st type sheet, herb. no. 2339578, US; 2nd type sheet, herb. no. 2339577, US).

The first type specimen bears four flowering heads, these slenderly and elongately pedunculate (peduncles 12-20 cm. long). The ligules appear to have been indeed yellow when fresh, as stated on the label for the second type sheet, not "lilac" as recorded for one of the two topotypes examined.

Appears to differ from the var. *holwayi* of southwestern Guatemala (Quezaltenango) in its smaller flowering heads, these about 4 cm., not about 6 cm. across; outer phyllaries 10-14, not 8 or 9, and measuring longer, about 1-2.2 cm. instead of 9-15 mm. long; ligules only about 1.5 not 2.3-3 cm. long, etc. In my revision of the genus *Bidens* (Bot. Ser. Field Mus. Nat. Hist. 16: 1-709. 1937), this variety would trace at once to the fourth letter *g* on page 56. From the two species included thereunder, *Bidens segetum* and *B. squarrosa*, var. *colombiana* differs sharply in its longer achenial bodies, these 16-22 mm. not 6-13 mm. long, also in larger flowering heads, with outer phyllaries 1-2.2 cm. not 3-7 mm. long, etc.

**BIDENS pusilla** sp. nov.—Herba pusilla, perennis, omnino hispidula, caulibus patentibus numerosisque vix 6-10 cm. longis internodiis gracilimissis tantum 4-16 mm. longis, usque ad circ. 1 mm. crassis, apicem versus lateraliter subantrorsumque ramosis ramis terminaliter in pedunculis gracillimos monocephalicosque productis. Folia opposita, minima, petiolo adjecto tantum 4-7 mm. longa, petiolo subplano  $\pm 1-2$  mm. longo, lamina plus minusve tripartita, lobis (foliolis) lateralibus 1 jugo, sessilibus, cuneato-obovatis apice irregulariter acriterque 2- vel 3-dentatis, lobo (foliolo) terminali tripartito segmentis varie simplicibus vel rursus sectis cuneato-oblongis setis magis conspicuis sed paucioribus. Capitula radiata, pansa ad anthesin 1.5-2 cm. lata et circ. 5 mm. alta. Involucri bractee exteriores circ. 5 vel 6, oblongo-lineares, circ. 3 mm. longae, apice

calloso subobtusae, extus subglabrescentes sed marginibus conspicue ciliatae; interiores purpureo-atrae, lanceolato-oblongae vel elliptico-oblongae, extus conspicue sed subsparsum elongato-setulosae, quam exteriores usque ad duplo longiores. Flores ligulati 7 vel 8, flavi, sub 1 cm. longi, ligula anguste oblongi apice minutissime denticulati longitudinaliter lineati. Paleae tenerrimae anguste lineari-oblongae apice atro-aurantiacae acutaeque circ. 6-7 mm. longae. Achaenia obcompressa, anguste linearia, exalata, inferne sensim angustata, utraque facie 2-sulculatis, corpore atra  $\pm 4.3$  mm. longa, basi apiceque flavida, glabra vel apicem versus aegre suberectaeque setulosa, apice biaristata aristis  $\pm 1$  mm. longis rectisque, apicem versus retrorsum paucibarbatis.

Specimens examined: *Harriet G. Barclay & Pedro Juajibioy* 7986, herb with spreading stems and finely divided leaves; heads with wide, yellow rays; disk flowers yellow; very common; large, open, grassy páramo, alt. circ. 3700 m., western side of range above Pujilí, west of Latacunga, campsite, disturbed roadside, Páramo de Milín, Cordillera Occidental, Prov. Cotopaxi, Ecuador, July 15-16, 1959 (US, type, herb. sheet no. 2372755).

In the entire genus *Bidens* L., this species is equaled by no other species in the miniature size of its remarkably small leaves. The entire plant on the type sheet bears a superficial resemblance to *Bidens anthemoides* (DC.) Sherff of southern Mexico, a species with more decomposed leaves, measuring over all 1-5 or even to 7.5 cm. in length. In the key given in my revision of the genus *Bidens* (Bot. Ser. Field Mus. Nat. Hist. 16: 57. 1937) this species would trace to the final letter *g* on page 57, except that its ligulate florets are scarcely 1 cm. long. From all taxa included under the final *g*, however, *B. pusilla* differs at once in its diminutive leaves.

**COREOPSIS piurana** sp. nov.—Frutex parvus, erectus, sine dubio sub 1 m. altus, supra corymbose ramosus et  $\pm 25$ -capitulatus, caule subangulato et sulcato demum atro-brunnescente et  $\pm 3.5$  mm. crasso, internodiis glabris et  $\pm 3.5$  cm. longis; ramis conspicue suberectis, tetragonis, sub 1.5 mm. crassis, internodiis plerumque 2-3 cm. longis, glabris vel inferne medianeque adpresse obsoleteque setulosis, superne in corymbos parvos pauci-capitulatos abeuntibus; pedicellis tenuibus perspicue irregulariterque albo-tomentosis 2-3 (-5) cm. longis. Capitula radiata, erecta, pansa ad anthesin circ. 2.5-3 cm. lata et vix 1 cm. alta. Involucrum obconico-hemisphaericum, superne glabrum inferne manifeste albo-tomentosum, bracteis exterioribus 8-10, ovatis vel oblongis vel etiam oblanceolato-oblongis, adpressis,  $\pm 4$  mm. longis, 1-nerviis, apice subacutis vel subobtusis; interioribus oblongo-ovatis, exsiccatis subatris, margine anguste diaphanis, apice irregulariter acutis vel obtusis 8-9 mm. longis, numerosissime striatis. Flores ligulati circ. 8 vel 9, aurei, circ. 1.5 cm. longi; ligula elliptico-oblonga, numerose striata, apice constricta et plus minusve denticulata. Paleae lineari-oblongae, tenuissimae,

striatae, dorso mediane sursum setosae,  $\pm 6$  mm. longae. Achaenia obcompressa, exalata, corpore oblongo-oblancoolato, nigro  $\pm 4.5$  mm. longo et (superne) vix 2 mm. lato, tergo glabrato, facie ventrali marginibusque sursum albo-setoso (setis summis plus minusve fasciculatis); apice biaristato aristis rectis  $\pm 1.5$  mm. longis atro-stramineis, densissime antrorso-setosis.

Specimens examined: *J. Soukup* H662, near Huancabamba, Dept. of Piura, Peru (extreme northwestern part of), May, 1958 (type, US; herb. sheet no. 2426294). In the key given in my Revision of the Genus *Coreopsis* (Bot. Ser. Field Mus. Nat. Hist. 11: 279-475. 1936), this species would trace without difficulty to the first letter *l* on page 292: "*l*. *Achaenia villosa-ciliata* dorso sub palea glabra sed ad ventrem villosissima. 37. *C. Pickeringii*." That species, however, is a plant of very different habit, having solitary heads on long and slender peduncles measuring up to 1.5 (more rarely to 2.3) dm. long. In *C. piurana*, by contrast, the peduncles are clustered in groups of three or so, and are so short and slender that they might better be termed pedicels, as given in the above description.

**COREOPSIS SUAVEOLENS** var. **ecuadoriensis** var. nov.—Frutex forsitan altior, usque ad 2 m. altus, similiter odore *Covilleae divaricatae* (Cav.) Vail suaveolens. Capitula (non solitaria)  $\pm 3$ -adgregata ad fines ramulorum pedicellis gracilibus circ. 1.2-2.5 cm. longis, sparsim brevisimeque glanduloso-hispidulis.

Specimens examined: *Harriet G. Barclay and Pedro Juajibioy* 8563, shrub to 2 m. tall, growing up through other shrubs. Leaves finely divided into linear segments. Involucral bracts green with darker vein in center. Ligulate florets few, broad, deep yellow. Below true páramo on south side of high, flat páramos; north of Río León. Shrubs similar south side of Río León above Oña. Alt. ca. 3000 m., Nudo de Cordillera Occidental y Cordillera Oriental, Páramos de Silván, Prov. Azuay, Ecuador, July 30, Aug. 3, 1959 (type, US, herb. sheet no. 2372899).

*Coreopsis suaveolens* Sherff (Bot. Gaz. 89: 369. 1930; Revision of the Genus *Coreopsis*, Bot. Ser. Field Mus. Nat. Hist. 11: 336. 1936) was founded upon a single collection, *Erich Werdermann* 1114, at alt. of about 3,800 meters, Cordillera de Lallinca, Prov. Tarapacá, Dept. Tarapacá, Chile, March, 1926, represented by four specimens, GH (type, my photograph no. 2152) and (isotypes) F, S (my photograph no. 2029), and UC. As remarked at the time, the species possessed a habitual appearance strongly similar to that of *C. fasciculata* Wedd. An easily distinguishing character, however, was the pleasant odor of the dried herbarium specimens, these having the fragrance characteristic of the well known creosote-bush of the Southwestern United States, *Covillea divaricata* (Cav.) Vail. The same agreeable odor is pronounced in the lone specimen, *Barclay & Juajibioy* 8563, cited above from Ecuador for the type of a new variety.

In *C. suaveolens* proper (i.e., var. *suaveolens*) the heads are solitary, terminating the supernally naked branches (slender peduncles). In var. *ecuadoriensis*, they are clustered mostly in threes on slender pedicels about 1.2-2.5 cm. long.

COREOPSIS WOYTKOWSKII Sherff, Revision of the Genus *Coreopsis*, Bot. Ser. Field Mus. Nat. Hist. 11: 326. 1936.—An extension of range.—This species was based upon a single collection: *Felix Woytkowski* 24, on rocky hills at altitude of 2625 m., vicinity of Celendin, Dept. Cajamarca, Peru, June 5, 1936 (type, F, my photograph no. 3179; Chicago Natural History Museum photograph no. 49160, of two fragments of type). Shortly afterwards a collection was made in the Department of Chachapoyas, Peru: *Christopher Sandeman* 17, alt. 7000 ft., Chachapoyas, Peru, August, 1938 (K, my photograph no. 3454). Among the specimens of *Coreopsis* and related genera recently sent me from the Smithsonian Institution (US) is an excellent specimen from still a third collection: *J. J. Wurdack* 1147, shrub 1 m. tall, on dry cliff face. Rays and disk yellow; summit of Puma-urcu southeast of Chachapoyas, alt. 3100-3200 m., Prov. of Chachapoyas, Dept. of Amazonas, Peru. It is seen then, that *Sandeman* 17 and *Wurdack* 1147 extend the geographic range of *C. woytkowskii*, known heretofore only from the Department of Cajamarca, into the Department of Amazonas, immediately to the northeast of the Department of Cajamarca.

COREOPSIS HOLODASYA Blake, Kew Bull. 15: 373. 1962.—In my above cited Revision of the Genus *Coreopsis*, this little-known species, unknown till two years ago, would trace in the analytical key there given to the first letter *c* on page 290, "Folia 0.5-2 cm. lata." Underneath that step are listed three species, the first two, *C. oblanceolata* and *C. woytkowskii* grouped under the step *d*, and having the leaves oblanceolate and 0.5-1.5 cm. wide; the third species, *C. irmscheriana*, standing under the second *d*, and having the leaves narrowly ovate-lanceolate, and 1-2 cm. wide.

In *C. holodasya*, the leaves are neither oblanceolate nor narrowly ovate-lanceolate, but instead narrowly elliptic-oblong, and under 1 cm. wide. In my recently published Annotated List of My Botanical Writings (Illinois Wesleyan Univ., Bloomington, Ill., May, 1964), no mention unfortunately was made of this species, which at the time was unknown to me. It should have been provided for, of course, on page 18 of that work, with the direction to include its mention on page 290 of the Revision of the Genus *Coreopsis*, as above provided for. (In passing, we may note a misprint of the word *breviora* in line 28 of page 290.)